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INSTRUCTION MANUAL & SERVICE MANUAL

ORLIGNO 400

ISO 14001 ISO 9001 TÜV CERT CE

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Thank You for choosing a ORLIGNO 400 pellet burner from Eko-Vimar Orlanski.

We ask you review this operating and installation manual before you start installing your new ORLIGNO 400 pellet boiler in order to avoid harm to people and product.

We recommend that the boiler is installed by a licensed plumber.

This manual contains information that is protected under copyright law.

1. Delivery

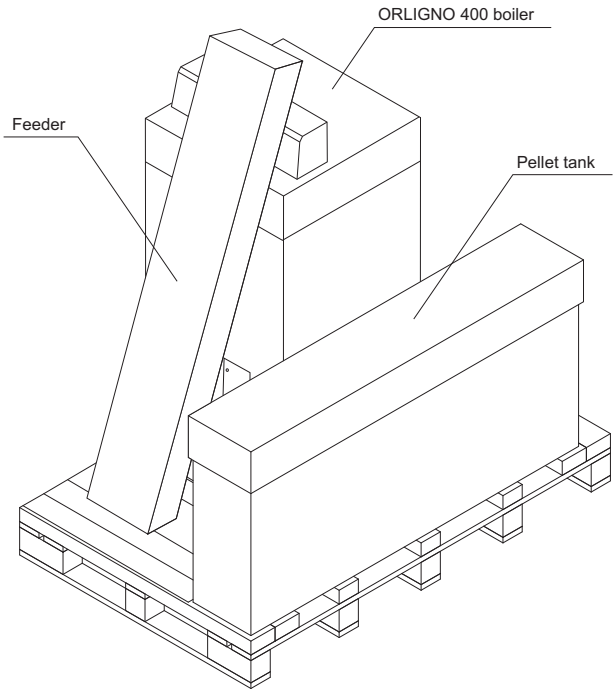
ORLIGNO 400 package is packed on one pallet wrapped up with foil. External elements of ORLIGNO 400 are packed in cardbox:

- pellet tank with elastic pipe and clamps

- auqer with motoreducer

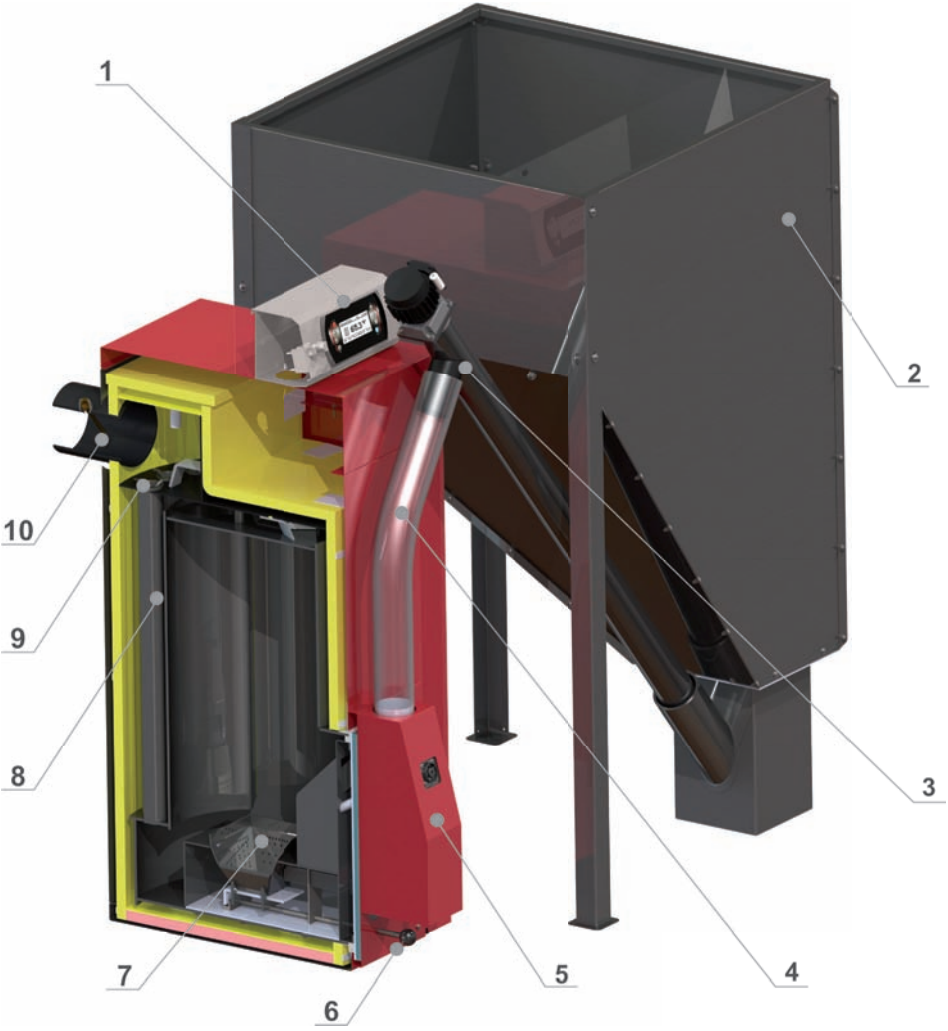
- documentation inside of the boiler

- cleaning tools are attached to the pallet

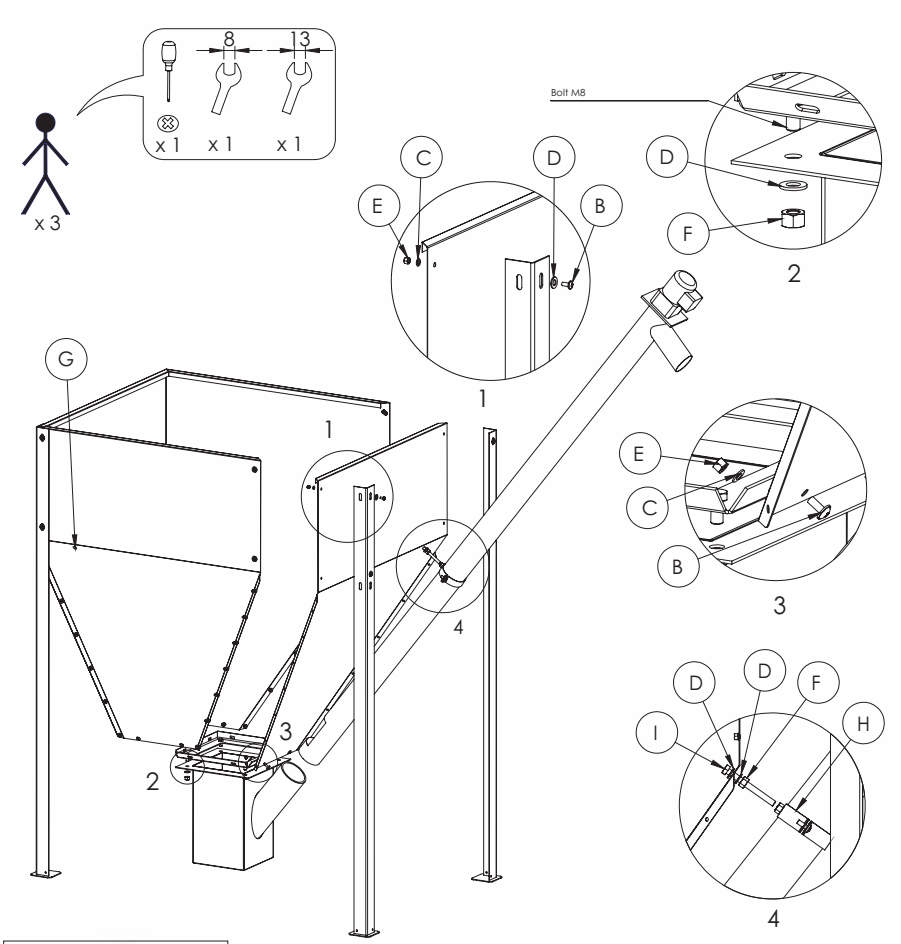


2. Boiler view after assembly

1. Boiler controller
2. Pellet tank
3. External auger
4. Feeding pipe
5. Burner
6. Lever for burner cleaning
7. Burner bin
8. Tube exchanger
9. Turbulators
10. Chimney flue



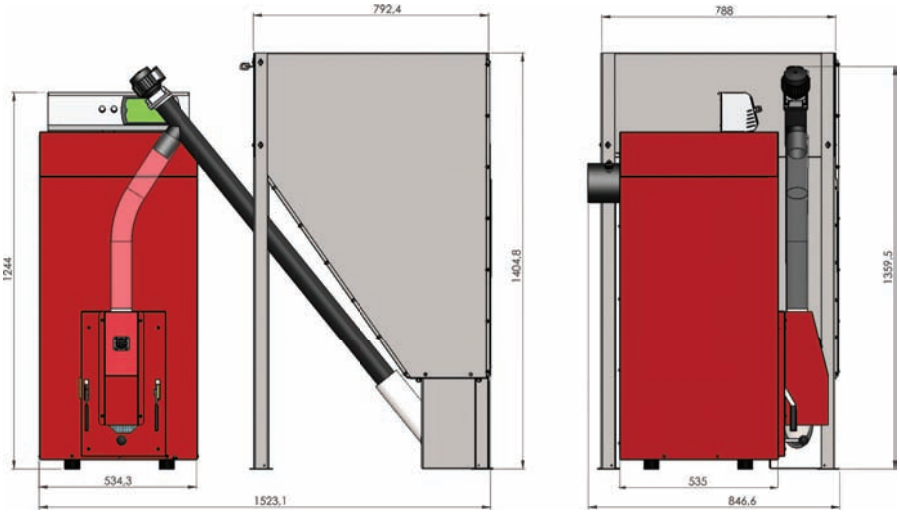
3. Pellet tank assembly



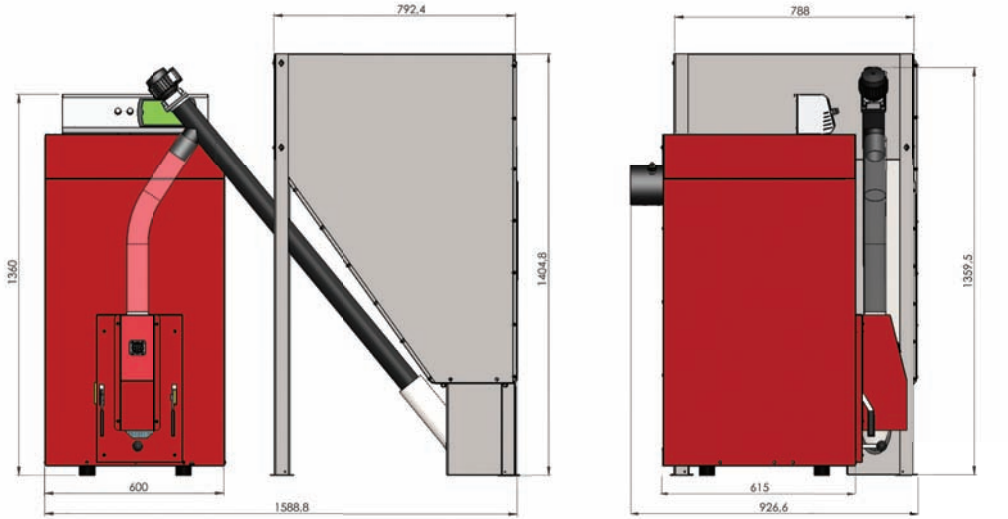
A x 34 M5 x 8 Bolt			
B x 12 M5 x 16 Bolt	C x 46 M5 Washer	D x 18 M8 Washer	E x 46 M5 Nut
F x 5 M8 Nut	G x 1 Plug	H x 1 Clamp	I x 1 M8 x100 Bolt

4. Dimensions

4.1. ORLIGNO 400 16kW



4.2. ORLIGNO 400 30kW

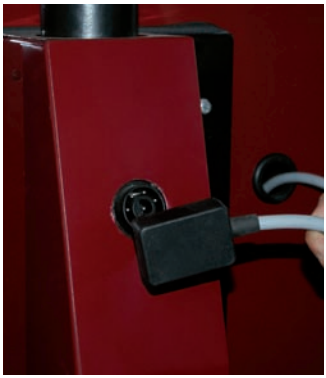


5. Technical data

Type	unit	16kW	30kW
Weight	kg	142,5	190
Flue	mm	133	155
Water outlet, return	inch	1	1
Efficiency	%	89,4	91,8
Power range	kW	3,9-16	7,8-30
boiler class EN 303-5		3	3
Required draft	Pa	min 10	min 10
Max working pressure	Bar	2,5	2,5
Water content	l	49	57
Max boiler temp.	°C	80	80
Min boiler temp.	°C	60	60
Flue gas temp. nominal minimal	°C	 130-150 77	 155-170 84
Flue gas flow nominal minimal	kg/h	 33 13	 60,1 19,6
Fuel usage nominal minimal	kg/h	 4 0,8	 7,5 1,5

6. Orligno 400 package assembly

Mounting external equipment:
1. Attach burner plug to the burner socket (pic 1)
2. Assemble fuel tank acc. to enclosed manual.
3. Insert external feeder in to the tank:
4. Attach the elastic pipe between external feeder and the metal connector. Tighten elastic pipe to feeder and metal connector with clamp.
5. Make sure the elastic pipe is near vertical (no bends), so the pellets drop directly into the hearth.
6. Attach the connector from the controller to feeder's motoreducer.
7. Fit the plug 230V to socket from the controller to the 230V socket.



pic. 1

7. Before starting of the burner it is necessary:

1. Check installation condition.
2. Fill in pellet to the tank.
3. Check if fuel contains any unwanted elements (rocks, metal elements).
4. Connect burner's and feeder's plugs.
5. Turn on controller.
6. Feed fuel (SIMPLE MENU: Feed fuel: Yes) from the tank till it shows up on a burner.

ATTENTION!
Elastic pipe connected between burner and feeder must be under 45° angle so that pellets drops feely to the burner!

7. Turn off fuel feed and hold ON/OFF button - boiler starts automatic lightning up.

8. Fuel characteristics - recommendations

a) Pellet granulate made according to DIN 51731

- granulate 5-8 mm
- recommended calorific value 17500-19500 kJ/kg
- ash content 1,5%
- max moisture content 12%
- density 1-1,4 kg/dm^3

ATTENTION!
It is recommended to use fuel from reliable sources. Fuel should have appropriate humidity and low content of small fractions. It is necessary pay attention especially to mechanical pollution (stones), which worsen burning process and may lead to burner's failure.

Eko-Vimar Orlański sp. z.o.o. is not responsible for appliance failure or improper burning process when using inappropriate fuel.

9. Cleaning instructions

Cleaning should be done regularly and as needed.
The boiler should be cleaned weekly to achieve the best efficiency.
This ensures the best fuel economy and operation.
You increase the cleaning interval if you use the best quality of pellets.

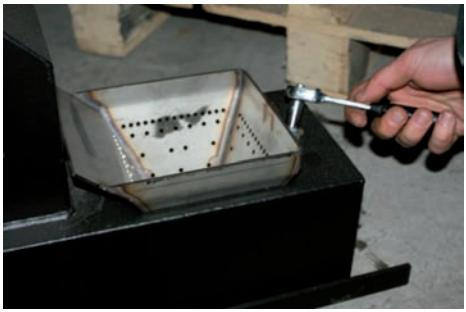
Maintenance - chamber cleaning

Disconnect burner plug from the burner and take out burner.

Clean burning chamber with poker from ashes.

Maintenance – burner cleaning

Take out the burner



Remove the fixing screw holding basket to the burner

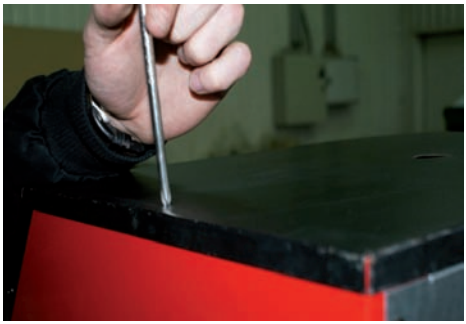
Remove burner's basket

Clean burner body and basket

WARNING!

Check permeability of basket holes.

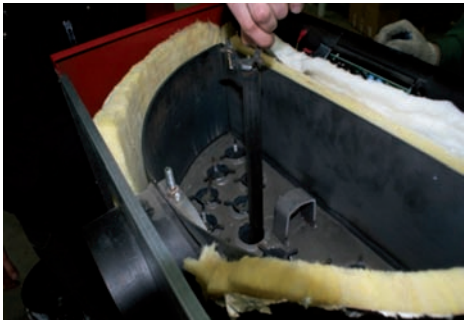
Maintenance – heat exchanger's cleaning



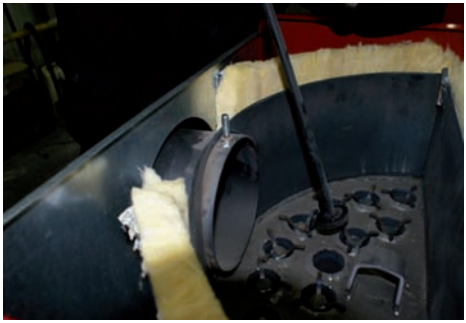
Unscrew upper cover

Remove upper cover

Unscrew upper exchanger cover



Pull out all turbulators

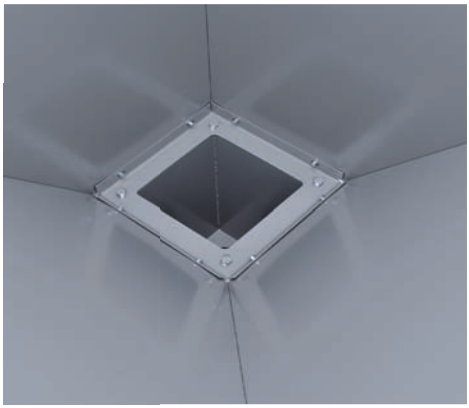


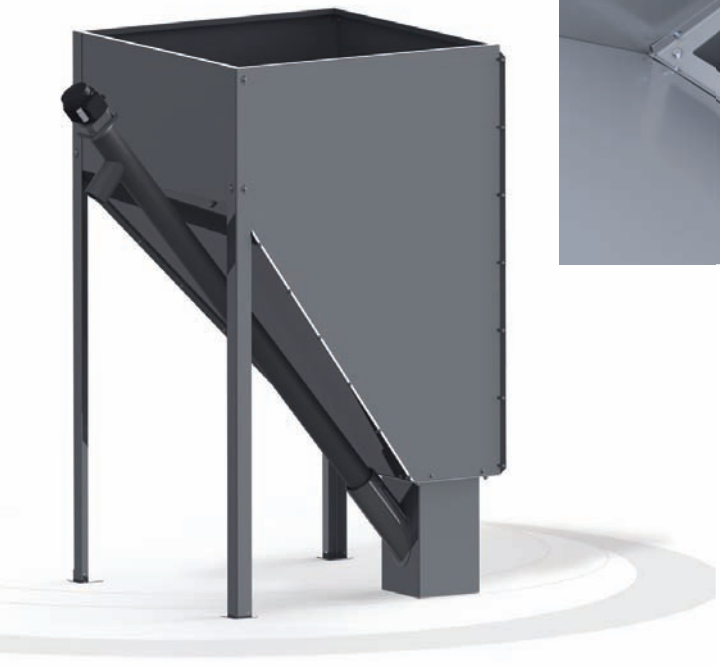
Clean heat exchanger's pipes and turbulators

WARNING!
If boiler is not used for over 14 days it is necessary to empty pellet tank and feeding auger.

Cleaning of pellet tank:

Occasionally you have to empty the tank completely, in order to clean the area around the feeder inlet from pellet dust.
The more dust there is in the tank and around the feeder inlet, may lead to fewer pills in the feeder and the boiler will come out of alignment with the risk of downtime.
How often to do tank clean, depends entirely on silo design and the quality of fuel.





ASSEMBLY OF CLEANING MECHANISM - OPTION

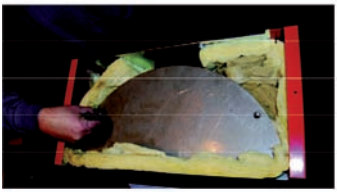


Fig 1. Disconnect top boiler cover.

Fig 2 Pull out all turbulators.

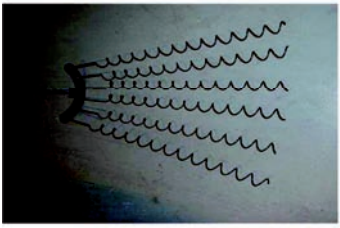


Fig 3 Screw together the cleaning system.

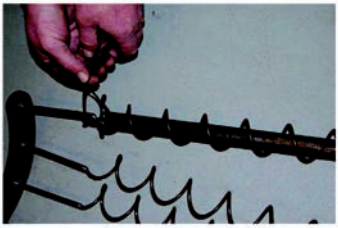


Fig 4 Us strips for keeping the turbulators in correct place

Fig 5 Place 4 turbulators (as photo)
Remember to remove the strips

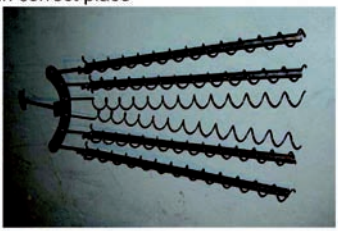


Fig 6 In case of low chimney temperature, remove more turbulators.

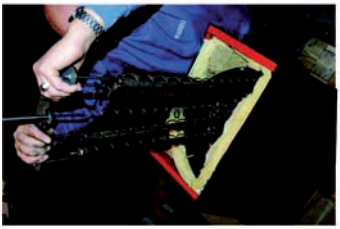
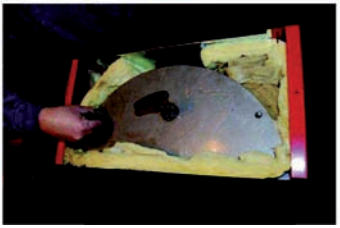


Fig 7 Place cleaning system into the boilers (As photo)

Fig.8 Pull down the cleaning system.

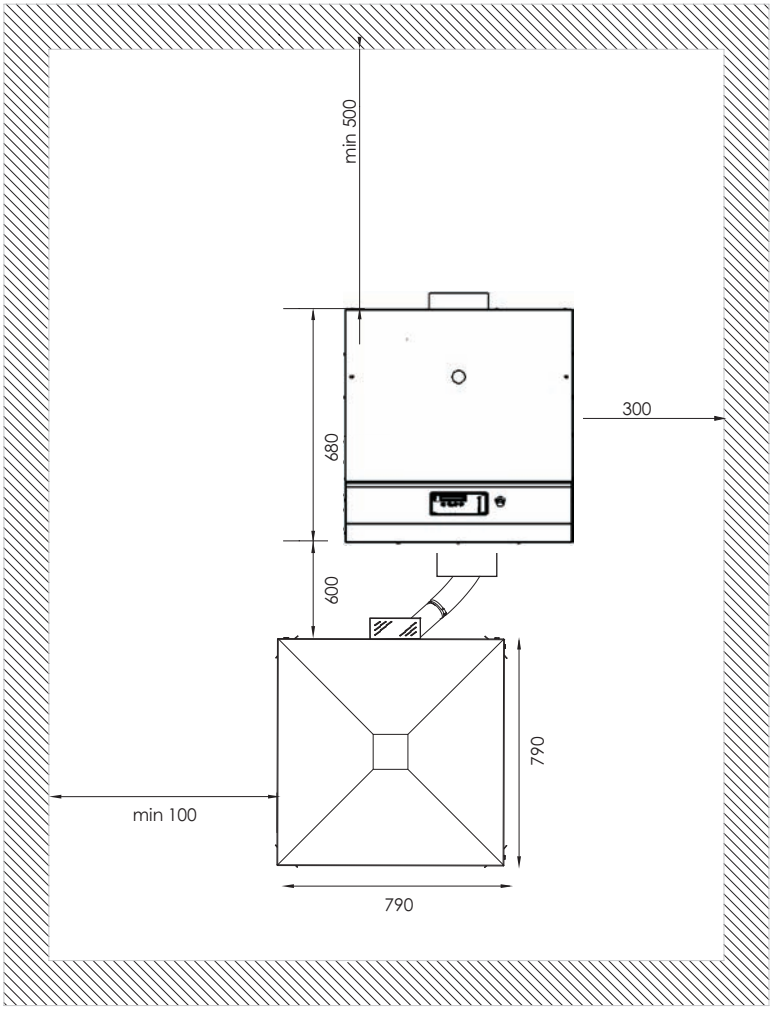
Fig 9 Place the top cover again and fix all bolts. Make a 12 mm hole in the plastic tap in the boiler top cover.

Do the cleaning 2 - 3 times each week.



10. Location and package installation

Recommended distances to the walls in the boiler room.



10.1. Boiler room recommendation

- Package (boiler, burner, tank, feeder) should be placed in separate room, centrally to heated rooms
- Front door should open outside and must be made of nonflammable materials, with 0,8 width
- Floor should be made of nonflammable materials or covered with 0,7 mm steel plate at minimum 0,5 m distance to door edges. Boiler should be located on a nonflammable foundation, lifted 0,05 m above floor level
- Boiler room should have artificial lightning but natural light is also recommended
- Distance to walls in boiler room should allow for easy access to all sides of the boiler
- Minimal distance from front side of the boiler to opposite wall should be 1m
- Minimal height of the boiler room: at least 2,2 m; in existing building it is allowed 1,9 m with assured supply-exhaust ventilation.
- It is forbidden to install boiler and burner in damp rooms or with elevated humidity. Corrosion process may in short time damage the boiler and burner.

10.2. Ventilation

- Boiler room should have 200 cm^2 supply-air duct
- Exhaust duct should have at least 14x14 cm section with inlet hole under boiler room ceiling that should lead above roof and be placed near chimney.
- Ventilation ducts should be made of nonflammable materials.
- It is forbidden to install mechanical ventilation

ATTENTION!
High risk of carbon monoxide poisoning exists if boiler is located in a room with insufficient access to fresh air.

10.3. Chimney system

Chimney draft:
If the chimney draft is exceeding 15 Pa, a draft stabilizer should be mounted in the chimney.

WARNING!
By chimney temperatue less than 180°C at rated output, you should be aware that smoke dose not condense in the chimney as it gives soot. At particularly low smoke temperature it may be necessary to put a ceramic or stainless steel sleeve in the chimney.

pic. Exemplary boiler connection to stainless steel chimney

10.4. Safe distance to inflammable substances

- During installation and exploitation it is advisable to maintain safe distance of 200 mm from inflammable substances
- For inflammable substances with C3 grade of combustibility which rapidly and easy burn (ex. paper, cardboard, wood, plastic) distance is minimum 400 mm;
- If combustibility grade is unknown safe distance should be doubled.

Combustibility grade of building products	Building products
A – non-burning	sandstone, concrete, bricks, fire plaster, Mortar, tile, granite
B - hard burning	cement board, fiberglass, mineral insulation
C1- hard burning	beech tree, oak tree, plywood
C2 – middle burning	pine, larch, spruce tree, cork, rubber floor cover
C3 – easy burning	tarmac plywood, celuloids, polyurethane, Polystyrene, polyethylene, plastic

User please remember:

- Only adult person acquainted with this manual may operate the burner It is forbidden for kids to stay in close distance to burner without presence of adult person.
- If inflammable gases penetrate boiler room during activities (varnishing, gluing) it is recommended to turn off the burner.
- It is forbidden to use inflammable substances for lightning up the burner, burner will light up automatically.
- High risk of fire exist when using open fire or inflammable substances close to installed boiler package.
- Burner should be turned off during maintenance (position OFF).
- Pay attention on hot burner's surfaces – risk of burn.
- It is forbidden to lay inflammable items on the burner or nearby.
- All defects should be removed at once.
- After heating season it is recommended to clean the burner and pellet tank thoroughly.
- Oversee the burner during power failure
- It is forbidden to manipulate with any electric parts or interfere in burner's construction.

Controller's manual
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11. Connection - electric scheme

ORLIGNO 400 is equipped in boiler sensor. Boiler sensor is inserted into sleeve in boiler body together with STB thermal protection. Burner contains termic sensor glued to burner body as a burn-back protection.

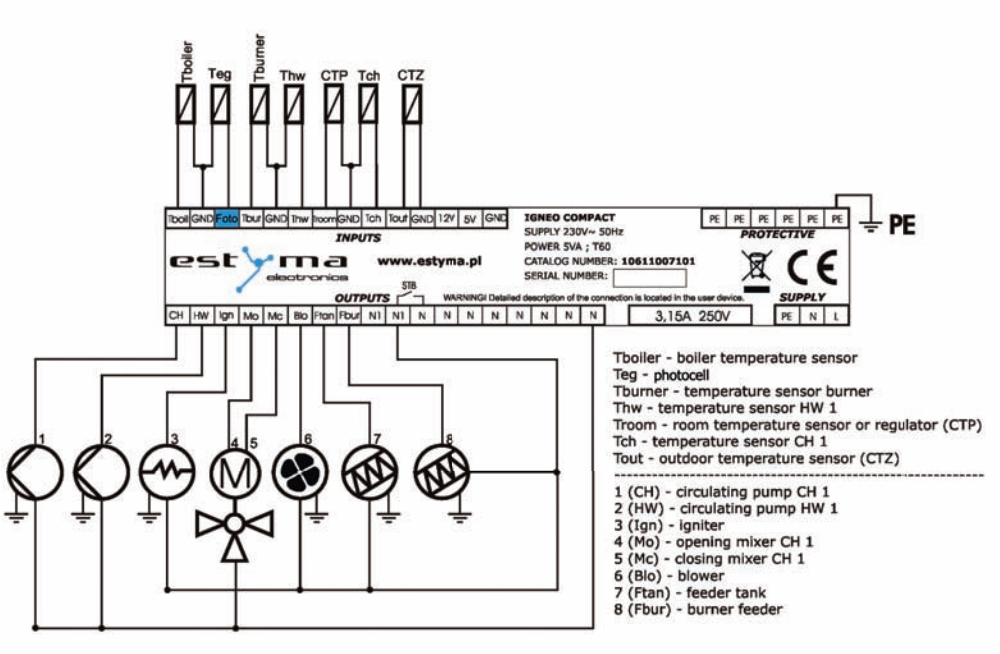
WARNING!
External sensors for installation control such as hot domestic water HW1 or central heating CH1 are an option. They are not included in standard ORLIGNO 400 package.

The device supply voltage is ~ 230V/50Hz. Plug the power cord to the controller in accordance with the posted signs.

Attach to the controller for operating the boiler sensors and actuators as needed. The drawings shows the connection scheme of equipment. In the tables, a description of the inputs and outputs.

WARNING!
Under no circumstances connect the protective conductor (PE) with a neutral (N).

WARNING!
Wiring must be done with the device disconnected from the power supply.
Connections should be exercised by a person possessing adequate powers in this regard.



INPUTS	
Description	Explanation
Tboiler	Boiler temperature sensor
Teg	Exhaust gas temperature sensor
Tburner	The temperature sensor burner
Thw	The temperature sensor hot water
Troom	Room temperature sensor / regulator (CTP)
Tch	The temperature sensor central heating
Tout	Outdoor temperature sensor (CTZ)
12V	+12V output to supply optional equipment
5V	+5V output to supply optional equipment
GND	Mass electric to connect sensors

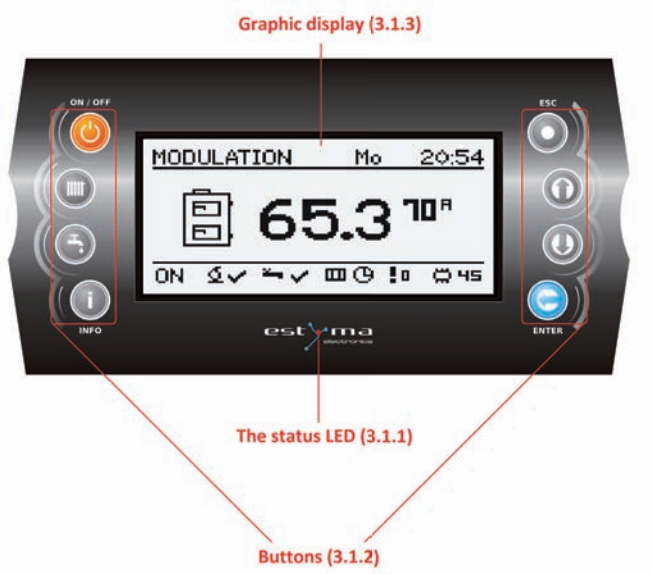
OUTPUTS	
Description	Explanation
1 (CH)	Central heating circulating pump
2 (HW)	Circulating pump for hot water
3 (Ign)	Burner igniter
4 (Mo)	Opening the central heating mixer
5 (Mc)	Closing the central heating mixer
6 (Blo)	Burner blower
7 (Ftan)	Feeder tank, or if burning wood, it's blower
8 (Fbur)	Burner feeder
STB	Protection STB
N	Neutral standing
N1	Neutral separable such as by STB
PE	Protective

Recommended burner settings in BURNER/SERVICE

Type	16kW	30kW
air min (20%)	20	20
air max (100%)	50	70
feeding max (100%)	4	7,5
photo threshold	10	10
test fuel mass	20	20
fuel calorific value	4,5	4,5
fuel start - dose	55	55

12. Overview of the basic functions

12.1. Control panel



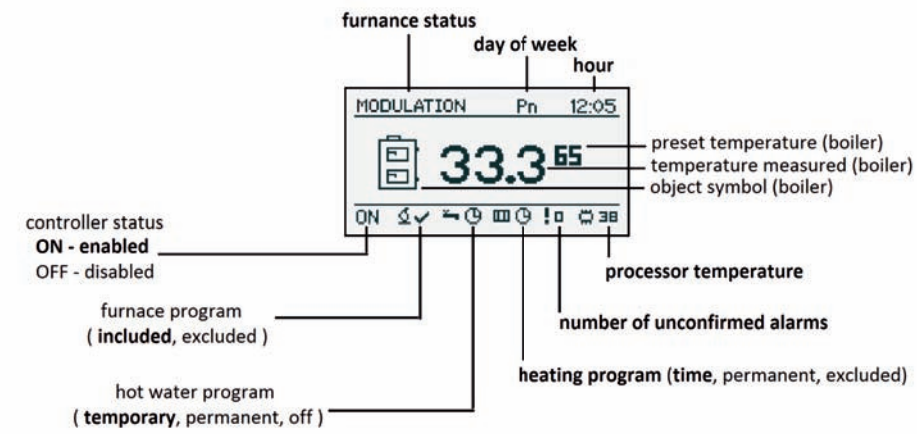
12.1.1 The status LED

Status	Importance
Green light continuously	Controller OFF
Green blinks	Controller enabled, burner OFF
Orange light continuously	Controller enabled, burner enabled
Orange blinks	Burner works
Red light continuously	There is an alarm to be confirmed
Red blinks	Alarm active

12.1.2 Buttons

Button	Function
ON / OFF	Long press on the main screen (>3 seconds) changes the state of the ON/OFF (on/off).
CH	Quick access to the full configuration settings for the central heating.
HW	Quick access to the full configuration settings for hot water.
INFO	Shows the navigation information and descriptions of the regulated parameters.
ESC	Back one level up in the menu, the resignation of the parameter change.
Up arrow	Navigating through the menus, increasing the value of the parameter being edited. On main screen, enter the menu simple.
Down arrow	Navigating through the menus, reducing the value of the parameter being edited. On main screen, enter the menu simple.
ENTER	Access to the menu. Acceptance of changes in the value of the parameter being edited. Confirmation of the alarm.

12.1.3 Graphic display



12.2. Statuses of furnace

Status	Description
TURNED OFF	The burner is not working. Permission to work off.
CLEANING	Cleaning the burner by strong stream of air.
FIRING UP	Firing up fuel. Providing the initial dose of fuel to run igniter and blower.
INCANDESCING	When the flame in phase of the firing up is discovered, starts providing additional portions of fuel and increase the power of blower for arcing furnace.
POWER 1	The burner works with the power first.
POWER 2	The burner works with the power of a second.
MODULATION	The burner works with a modulated power.
BURNING OFF	Quenching of the furnace. Work of burner and blower tray until the complete disappearance of the flame.
Stop	Burner does not work but it is to agree to his work. The required boiler temperature is reached.

13. Handling

13.1. Navigation in the menu

The device has two types of menus: simple and main menus.

Simple menu – allows for quick access to basic controller functions. Enter the menu is simple by pressing the "up arrow" or "down arrow" on the main screen. Description of a simple menu in chapter 11.

Main menu – allows you to access all the functionality of the controller (monitoring, adjustments and service settings.) Access to the main menu is done by pressing the button «Confirm, enter» on the main screen. Description of the main menu in Chapter 11.

PBack to the main screen is possible from any screen by pressing the button "Back, esc" several times.

WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system..

13.2. Starting regulator - ON

To run the controller (ON mode) for 3 seconds to press the „ON / OFF" on the screen when it is in the OFF mode.

13.3. Switching off the regulator - OFF

To turn off the controller (OFF mode) for 3 seconds to press the „ON / OFF" on the screen when he is in the ON mode.

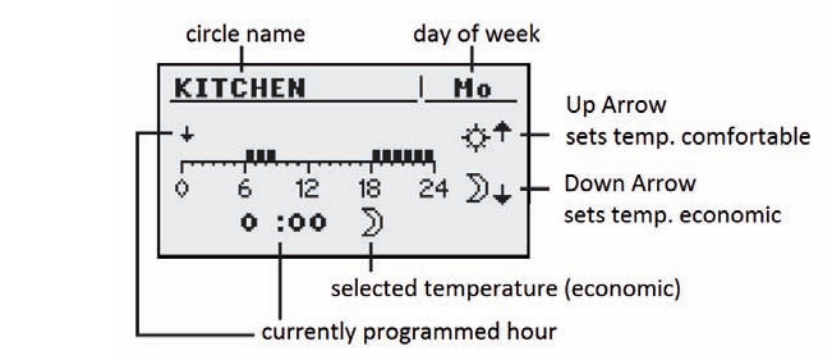
WARNING!
When you turn off the controller, depending on the previous state, the burner can still work (quenching), the state should not be interrupted. If the device is to be excluded from the power supply, wait quenching process, until the status of the burner is „off".

13.4. Time scheduling

Controller is equipped with a clock and calendar. This makes it possible to program the operation of individual circuit elements for heating depending on the time and day of week. Date and time are not reset during a power failure, because the controller is equipped with a battery that should be replaced every two years.

Programming takes place in the menu of the circuit (eg, hot water, heating, buffer) and for each item carried in the same way.

Selecting the day of week. Upon entry in the „Programme Time" day of the week flashes. Arrow buttons to select the day you want to set or just check the settings of the program. Programming. After selecting the day of week and approved „ENTER", indicator being programmed hours flashes. At the same time also displays the time, and the next to it icon that represents the currently selected setting time (the symbol of the sun means comfort temperature, the moon is a symbol of the economic temperature.) To move to the next hour, press the down arrow (economy temperature) or the up arrow (comfort temperature). If the day is already programmed in accordance with our wish, press „ENTER". After approved the changes (or cancellation) will blink day of the week.



The figure shows an example of the preset day of the week.

Temp. economy from 00:00 to 6:00

Temp. comfortable from 6:00 to 9:00

Temp. economy from 9:00 to 18:00

Temp. comfortable from 18:00 to 24:00

WARNING!
Values of temperatures comfortable and economical are set in the "SETTINGS" menu and may be different for each of the circuits. To make the time program work, you must also enable a timed mode in the "SETTINGS" menu.

13.5. Service password

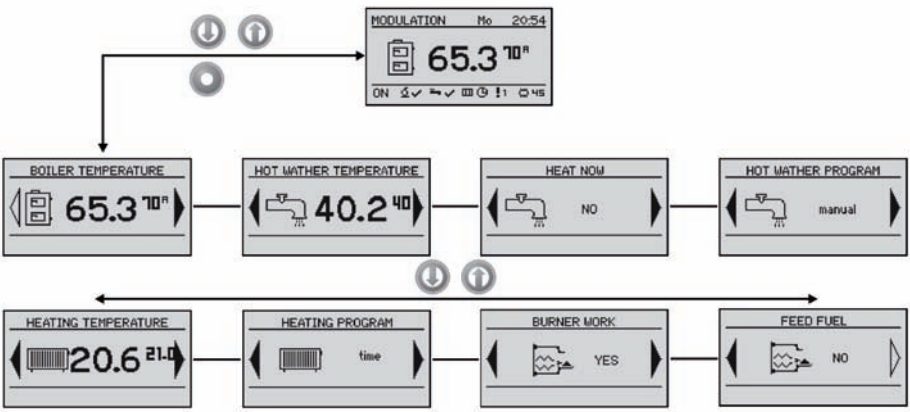
Access to the service parameters are password protected. After entering the correct password, access will be lifted. Access to the service parameters will be locked after a period of 10 minutes without pushing buttons.

Service code is a temperature of the boiler in menu BOILER / SETTINGS and 3 letters"EST".

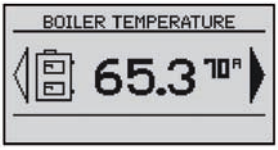
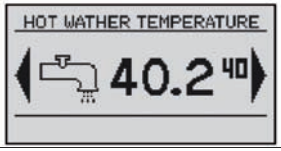
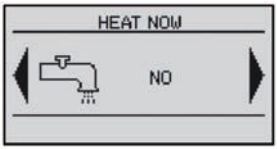
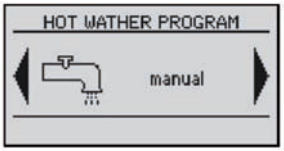
Example: If the temperature of the boiler in menu BOILER / SETTINGS is 60°C, password is: „60EST".

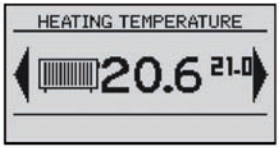
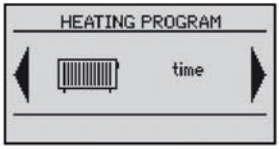
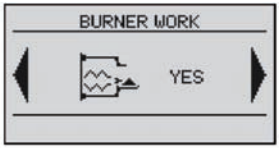
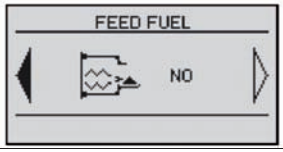
WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

14. Simple menu

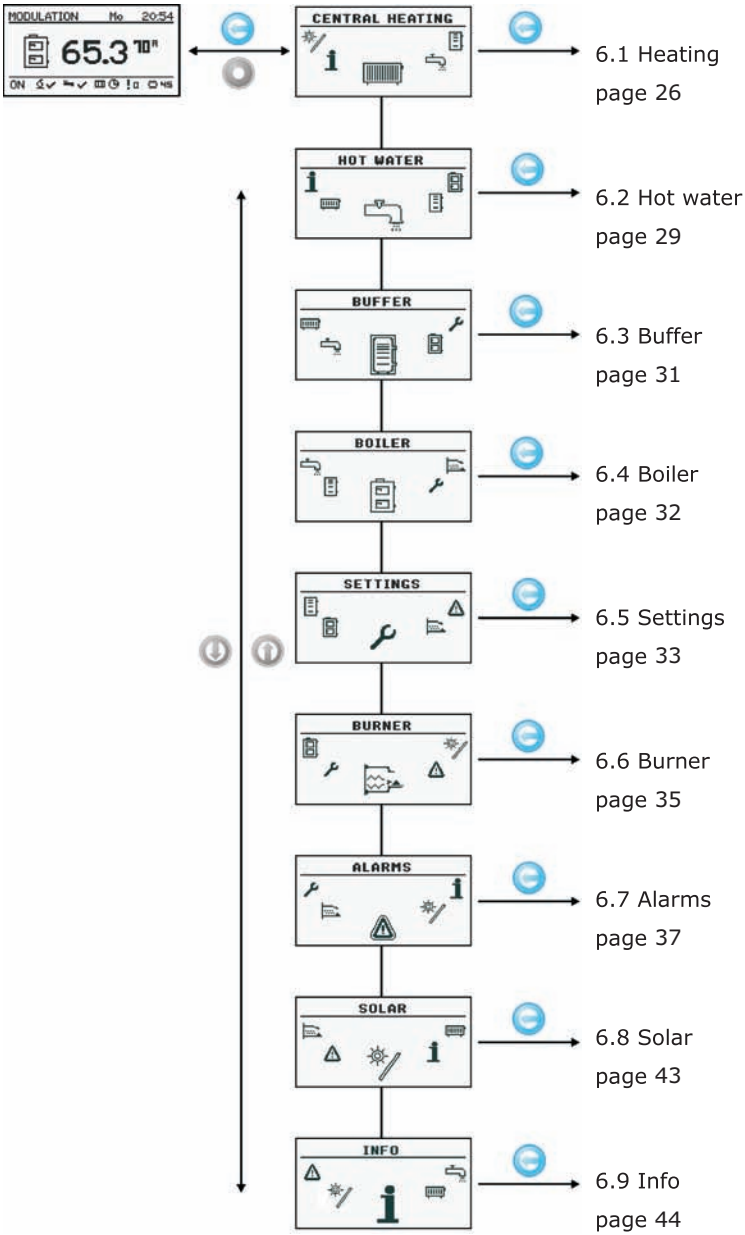


14.1. Simple menu screens

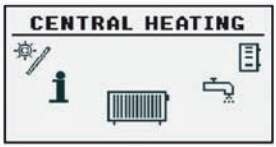
Screen	Description
	Shows the current temperature of the boiler (large font) and the desired temperature (small font). After pressing the„ENTER" set the desired temperature of the boiler.
	Shows the current temperature of hot water (large font) and the desired temperature (small font). After pressing the „ENTER" set the desired temperature of hot water. Menu relates to the circuit No. 1
	Disposable heating hot water to a comfortable temperature regardless of the program. Menu relates to the circuit No. 1
	Set the mode a hot water: a. time - according to the programmed timescales b. constatant - regardless of the time intervals comfortable temperature is maintained c. disabled - off the heat Menu relates to the circuit No. 1

	Shows the current temperature in the room No 1 (large font) and the value of the desired (small font). After pressing the „ENTER" go to set the desired temperature in the room. Menu relates to the circuit No. 1
	Set the mode a heating circuit: a. time - according to preset ranges b. constant - regardless of the time intervals comfortable temperature is maintained c. disabled - off the heat Menu relates to the circuit No. 1
	Allow for operation of the burner. When not consent to the burner operation, regulator controls the heatingsystem, but do not attach the burner.
	Manual start of the fuel feed from the tray. Useful function after the exhaustion of fuel from the cartridge. After refilling the fuel cartridge, run the „enter fuel" until the fuel gets into the burner.

15. Main menu

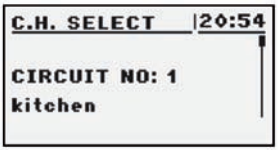

MODULATION Mo 20:54
65.3 70°
ON
CENTRAL HEATING
HOT WATER
BUFFER
BOILER
SETTINGS
BURNER
ALARMS
SOLAR
INFO
6.1 Heating
page 26
6.2 Hot water
page 29
6.3 Buffer
page 31
6.4 Boiler
page 32
6.5 Settings
page 33
6.6 Burner
page 35
6.7 Alarms
page 37
6.8 Solar
page 43
6.9 Info
page 44

15.1 Heating



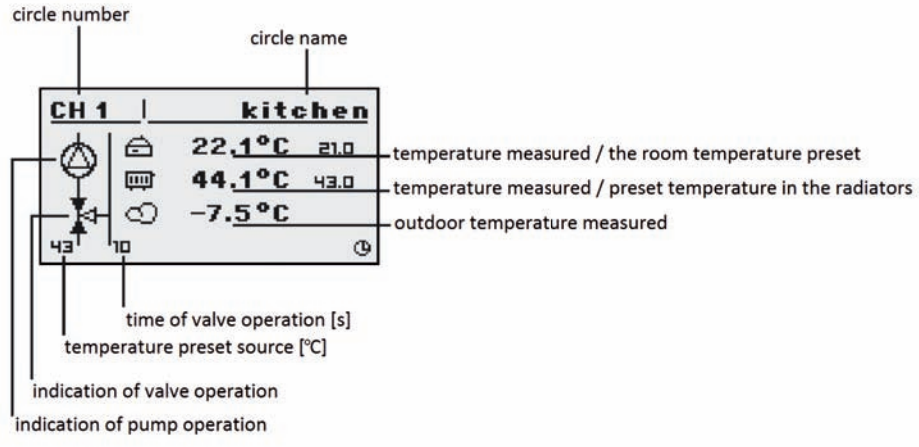
15.1.1 Selection of circuit

Allows you to select a number of central heating circuit. The selection of the circuit make arrows.



15.1.2 State

Allows you to monitor the status of central heating system.



15.1.3 Settings

Function	Description
Comfortable temp.	Desired temperature in the room during the heating.
Programme	Programs: a. time - according to preset intervals b. constant - regardless of the time intervals comfortable temperature is maintained c. disabled - off the heat d. economic - in the rooms temperature is maintained the economic
Temp. ekonomiczna	Desired temperature in the room outside the period of heating.

15.1.4 Time program

Used to configure the time program steering central heating..

Description of the adjustment time program refer to chapter 10.4.

15.1.5 Service

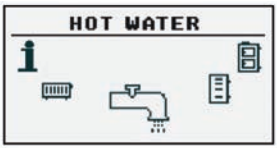
WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

Function	Description
Comf. MAX pump temp.	Maximum outdoor temperature at which the circulating pump can work in a comfortable range.
Econ. MAX pump temp.	Maximum outdoor temperature at which the circulating pump can work in a economic range.
MIN Tch pump	Minimum temperature calculated for central heating at which the circulating pump can be operated.
Source	Specifies the source of energy for central heating circuit.
Temperature MAX	Maximum temperature for central heating.
Mixer time	Time of full opening of the mixer.
Hot water priority	Priority for hot water of the heating circuit. During heating hot water the central heating pump is not working.
Pump test	Starts the pump regardless of other conditions.
Mixer test	Starts the mixer motor independently of the other conditions.
Circ. name	Gives name for the central heating circuit.

Function	Description
CH temp. for -20°C	The point of the heating curve for -20°C.
CH temp. for 0°C	The point of the heating curve for 0°C.
CH temp. for 10°C	The point of the heating curve at 10°C.

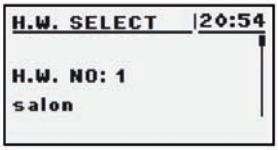
Service	
CH temp. for corr. factor	Central heating temperature correction required the desired room temperature for 1 ° C. For example, if the correction factor is set at 6°C, room temperature set at 20°C and measured in the room is 20.5°C then the temperature calculated at will be reduced by 3°C.
Mode type	Specifies the input mode central heating temperature: manual - the temperature of central heating inflicted manually, weather - the temperature of central heating calculated from the heating curve.
Manual Tch	The desired temperature of central heating when the mode is set to manual.
Room temp. sensor	Specifies whether the system uses a room sensor.
CH temp. sensor	Specifies whether the system uses a sensor heating.
Permanent pump	Yes - the pump runs at a given temperature in the room, reduced the temperature for heating (only with the use of a sensor for central heating and room sensor), No - after reaching the set temperature in the room the pump is turned off.

15.2 Hot water



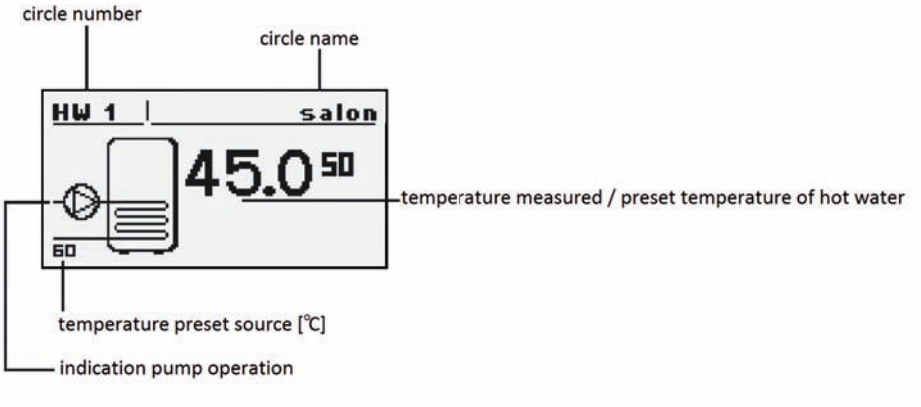
15.2.1 Selection of circuit

Allows you to select the number of hot water circuit.



15.2.2 State

Allows you to monitor the status of hot water.



15.2.3 Settings

Function	Description
Comfortable temp.	Desired temperature of hot water during heating.
Programme	Set the mode a circuit: a. time - according to preset ranges b. constant - regardless of the time intervals comfortable temperature is maintained c. disabled - off the heat.
Heat now	Heats hot water once to a comfortable temperature regardless of the program.
Hysteresis	The value of which can reduce the temperature of hot water.
Economical temp.	Desired temperature of hot water outside the period of heating.

15.2.4 Time program

Used to configure the time steering hot water preparation.

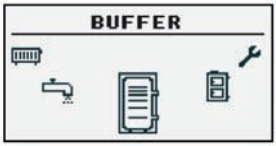
Description of the adjustment time refer to chapter 10.4.

15.2.5 Service

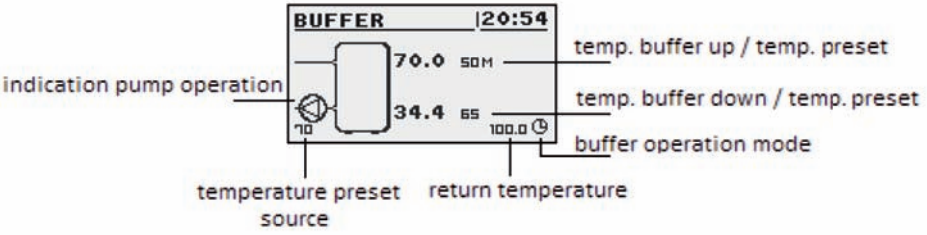
WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

Function	Description
Source delta	Increasing the temperature of the source of the desired temperature of hot water during heating.
Source	Specifies the source of energy for hot water.
Temperature MAX	Maximum temperature of hot water.
Delta MIN temp.	The minimum temperature difference between the source and the hot water at which the pump can work.
Pump test	Starts the pump regardless of other conditions.
Circ. name	Gives name for the hot water circuit.

15.3 Buffer (option available only with external module CAN)



15.3.1 State



15.3.2 Settings

Function	Description
Upper set temperature	Below this temperature in the upper part of the buffer starts charging.
Lower set temperature	Above this temperature at the bottom of a buffer completes the process of charging.
Programme	Constant - the buffer is charged regardless of the time, time - the buffer charged only at specified intervals. Intervals are set in the „time program", disabled - off charging buffer.

15.3.3 Time program

Used to configure time program to controlling charging buffer.

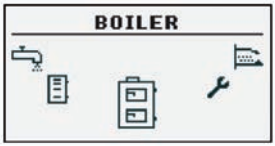
Description of program adjustment time refer to chapter10.4.

15.3.4 Service

WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

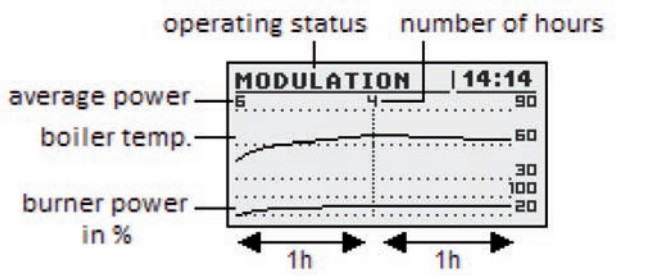
Function	Description
Minimal pump temp.	The minimum temperature in the upper part of the buffer at which the circulating pump can work for central heating.
Auto upper temp.	Specifies whether the upper temperature buffer (minimum) is requested manually or automatically. Automatically based on the needs of other power consumers in the buffer.

15.4 Boiler



15.4.1 State

Statistics of the boiler in the past 24 hours. The graph shows the temperature of the boiler and power of burner. „Hours" refers to how many hours ago the boiler behaved these operating parameters. Across the screen are displayed statistics of 2 hours. Screens switching buttons „up" and „down".



15.4.2 Settings

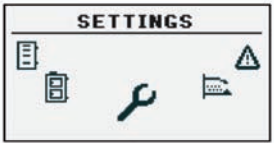
Function	Description
Boiler temp. set	Heating water temperature in the boiler which will be maintain the controller. Menu is active only in continuous work mode.

15.4.3 Service

WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

Function	Description
MIN pump temp.	The temperature above which the the controller can attach pumps.
Mode	Operating mode of boiler: a. auto - temperature calculated automatically b. continuous - the temperature is kept constant
Hysteresis	The temperature of the boiler must be reduced by this value to launch the burner.
MIN return temp.	Minimal return to boiler temperature maintain by mixer.
Return mixer time	Specifies the time of full opening of the return mixer.
Boiler pump test	Starts boiler pump regardless of other conditions.
Return mixer test	Starts actuator of the return mixer regardless of other conditions.

15.5 Settings



15.5.1 Date and time

Using this menu is made to set the date and time of the driver.

15.5.2 Language

Use this menu to select language of the menu.

15.5.3 General settings

15.5.3.1 Alarm buzzer

We define here, if the driver shall notify of alarms by acoustic signal.

15.5.4 Service

WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

15.5.4.1 Module configuration

Menu is used to configure the CAN network. In the menu, select the modules that are connected to the system.

WARNING!
A detailed description of the modules and their destination are described in the manual of expansion modules.

SUMMARY OF THE EXPANSION MODULES	
Module	Description
Module no. 0	3 heating circuits of the numbers 2,3,4. Outdoor temperature sensor.
Module no. 1	3 heating circuits of the numbers 5,6,7.
Module no.2	3 heating circuits of the numbers 8,9,10.
Module no 3	3 heating circuits of the numbers 11,12,13.
Module no 4	3 heating circuits of the numbers 14,15,16..
Module no 5	Buffer. Solar collectors. Hot water no. 2. Return temperature sensor.
Module no 6	Not used.
Module no 7	Not used.
Module Lambda	Module of the Lambda sensor.

15.5.4.2 System configuration

Menu is used to configure the heating system (hydraulic). The possibility of settings is dependent of number of expansion modules connected in the system.

WARNING!
You must first configure the modules..

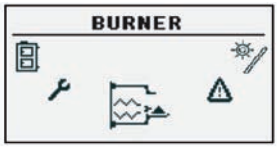
SYSTEM CONFIGURATION	
Function	Description
Number of CH circuits	Specifies the number of heating circuits in the system.
Number of HW circuits	Specifies the number of hot water circuits in the system.
Number of buffers	Specifies the number of buffors in the system.
Outside temp. sensor	Specifies if in the system is installed outside temperature sensor (module 0).
Return temp. sensor	Specifies if in the system is installed return temperature sensor (module 5).
Solars	Specifies if the system is equipped with solar collectors.

15.5.4.3 Restore to factory settings

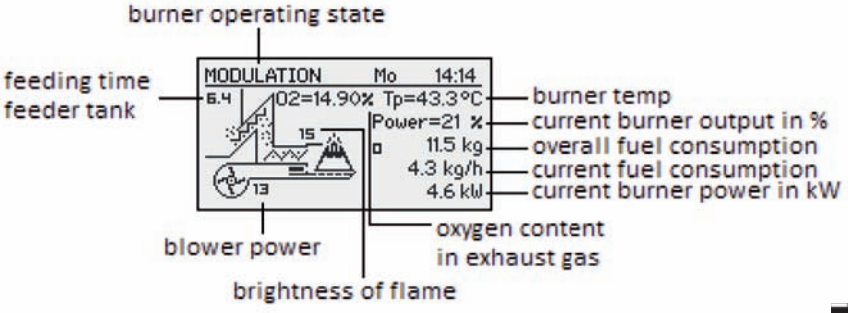
This function allows the controller to restore the factory settings.

WARNING!
Will be restored all factory settings, which can cause your system to malfunction.
After restoring the factory settings may be need to reconfigure the controller settings.

15.6 Burner



15.6.1. State



15.6.2. Settings

Function	Description
Feed fuel now	Starts fuel feeding screw regardless of other features.
Burner on	Consent to work of the burner.
Fuel type	Specifies the type of fuel.

15.6.3. Service

WARNING!
Access the service is intended only for qualified technical personnel. The changes may cause malfunction of the system.

Function	Description
Air MIN (20%)	Minimum amount of air during modulation where power of burner is 20% or power number is 1.
Air MAX (100%)	Maximum amount of air during modulation where power of burner is 100% or power number is 2.
Feeding MAX (100%)	Maximum time during fuel feeding when power of modulation is 100% or power number is 2 on every 20 seconds.
Power MIN (FL2)	Minimal burner power during modulation.
Power MAX (FL2)	Maximal burner power during modulation.
Modulation type	Burner mode, power modulation or two power levels.
Photo threshold	Brightness in the the burner over which is recognized as a fire.
Igniter test*	Turn on igniter for testing.
Heater feeder test*	Turn on burner feeder for testing.
Storage feeder test*	Turn on storage feeder for testing.
Blower test*	Turn on blower for testing.
Test fuel mass	Fuel mass obtained during continuous fuel feeder work through 1 hour (in kg).
Fuel calorific value	Fuel calorific value (in kWh/kg).
Lambda control	Determine whether regulator consider or not oxygen concentration.
Oxygen MIN (20%)	Oxygen target for minimal power.
Oxygen MAX (100%)	Oxygen target for maximal power.
Fuel start dose	Feeding time in order to ignite fuel.

* testing equipment in the menu "BURNER" is only possible when the controller is in the OFF mode.

15.7 Alarms

This menu contains a history of up to 20 alarms that occurred during the controller work. The importance of alarm codes was presented in table below.

15.7.1. Alarm codes

CODE	Short description	Explanation
1	Processor overheating	Procesor overheating. The reason may be improper installation location of the controller.
2	No fire / fuel	The controller detected a lack of flame in the burner. The reason could be the end of the fuel or the flame goes out.
3	Burner overheating	The temperature of the burner has reached its maximum value!ą!
4	Boiler sensor shorted	The controller detected shorted boiler temperature sensor. The reason may be damaged sensor or connection cable.
5	Boiler sensor open	The controller detected open boiler temperature sensor. The reason may be damaged sensor or connection cable.
6	Burner sensor shorted	The controller detected shorted burner temperature sensor. The reason may be damaged sensor or connection cable.
7	Burner sensor open	The controller detected open burner temperature sensor. The reason may be damaged sensor or connection cable.
8	Boiler overheating	Boiler temperature has exceeded the maximum value!
9	Processor reset	Probable damage the controller! Possible to loss of power supply.
10	STB	
11	Communication with module 0	
12	Communication with module 1	
13	Communication with module 2	
14	Communication with module 3	
15	Communication with module 4	
16	Communication with module 5	
17	Communication with module 6	
18	Communication with module 7	
19	HW sensor shorted	

CODE	Short description	Explanation
20	HW sensor open	
21	Room temp. sensor shorted	
22	Room temp. sensor shorted	
23	Quenching error	
24	Lambda communication	
25	Solars overheating	
26	Solars freezing	
The codes of the modules		
33	Shorted IN1 Module 0	
34	Shorted IN2 Module 0	
35	Shortede IN3 Module 0	
36	Shorted IN4 Module 0	
37	Shorted IN5 Module 0	
38	Shorted IN6 Module0	
39	--	
40	--	
41	--	
42	--	
43	Zwarcie IN11 Module 0	
44	--	
45	Open IN1 Module 0	
46	Open IN2 Module 0	
47	Open IN3 Module 0	
48	Open IN4 Module0	
49	Open IN5 Module 0	
50	Open IN6 Module 0	
51	--	
52	--	
53	--	
54	--	
55	Open IN11 Module0	
56	--	
57	--	
58	Overheating Module 0	

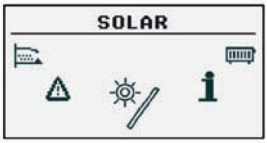
CODE	Short description	Explanation
65	Shorted IN1 Module 1	
66	Shorted IN2 Module1	
67	Shorted IN3 Module 1	
68	Shorted IN4 Module 1	
69	Shorted IN5 Module 1	
70	Shorted IN6 Module 1	
71	--	
72	--	
73	--	
74	--	
75	--	
76	--	
77	Open IN1 Module1	
78	Open IN2 Module 1	
79	Open IN3 Module 1	
80	Open IN4 Module 1	
81	Open IN5 Module 1	
82	Open IN6 Module 1	
83	--	
84	--	
85	--	
86	--	
87	--	
88	--	
89	--	
90	Overheating Module 1	
97	Shorted IN1 Module 2	
98	Shorted IN2 Module 2	
99	Shorted IN3 Module 2	
100	ShortedIN4 Module2	
101	Shorted IN5 Module 2	
102	Shorted IN6 Module 2	
103	--	

CODE	Short description	Explanation
104	--	
105	--	
106	--	
107	--	
108	--	
109	Open IN1 Module 2	
110	Open IN2 Module 2	
111	Open IN3 Module 2	
112	Open IN4 Module 2	
113	Open IN5 Module 2	
114	Open IN6 Module 2	
115	--	
116	--	
117	--	
118	--	
119	--	
120	--	
121	--	
122	Overheating Module 2	
129	Shorted IN1 Module 3	
130	Shorted IN2 Module 3	
131	Shorted IN3 Module 3	
132	Shorted IN4 Module 3	
133	Shorted IN5 Module 3	
134	Shorted IN6 Module 3	
135	--	
136	--	
137	--	
138	--	
139	--	
140	--	
141	Open IN1 Module 3	
142	Open IN2 Module 3	
143	Open IN3 Module 3	

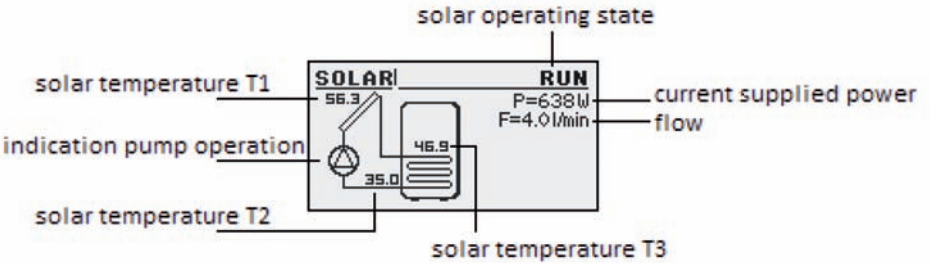
CODE	Short description	Explanation
144	Open IN4 Module 3	
145	Open IN5 Module 3	
146	Open IN6 Module 3	
147	--	
148	--	
149	--	
150	--	
151	--	
152	--	
153	--	
154	Overheating Module 3	
161	Shorted IN1 Module 4	
162	Shorted IN2 Module 4	
163	Shorted IN3 Module 4	
164	Shorted IN4 Module 4	
165	Shorted IN5 Module 4	
166	Shorted IN6 Module 4	
167	--	
168	--	
169	--	
170	--	
171	--	
172	--	
173	Open IN1 Module 4	
174	Open IN2 Module 4	
175	Open IN3 Module 4	
176	Open IN4 Module 4	
177	Open IN5 Module 4	
178	Open IN6 Module 4	
179	--	
180	--	
181	--	
182	--	
183	--	

CODE	Short description	Explanation
184	--	
185	--	
186	Overheating Module 4	
193	Shorted IN1 Module 5	
194	Shorted IN2 Module5	
195	Shorted IN3 Module5	
196	Shorted IN4 Module 5	
197	--	
198	Shorted IN6 Module 5	
199	Shorted IN7 Module 5	
200	Shorted IN8 Module 5	
201	Shorted IN9 Module 5	
202	--	
203	--	
204	--	
205	--	
206	Overheating Module 5	

15.8 Solar (option available only with external module CAN)



15.8.1 State



15.8.2 Settings

Function	Description
Turn on delta	Temp. difference between solar and accumulator needed for solar pump turn on.
Turn off delta	Temp. difference between solar and accumulator needed for solar pump turn off.

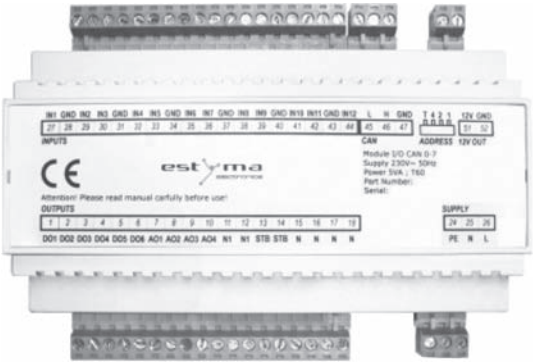
15.8.3 Service

Function	Description
Schematic	Solar system schematic.
Flow [l/min]	Heating fluid flow in l/min.
Fluid specific heat	Specific heat of heat-transfer fluid [kJ/ (kg*K)].
MAX HW temp.	Over this hot water temp. solar pump is turn off.
Solar alarm temp. MAX	Maximal temp. of solar collector. Alarm and damage preservation procedure are taken over this temp.
Solar alarm temp MIN	Minimal temp. of solar collector. Alarm and antifreeze procedure are taken under this temp.
Solar pump test	Allow for solar pump testing.

15.9 Info

There you will find useful information about the controller, including the version of software.

16. Expansion of the system - CAN bus



The controller is equipped with a high bandwidth CAN bus used to communicate with the modules. Thanks to the well-known for their reliability, widely used in automotive bus system is expandable to the highest level.

Use of CAN bus carries several advantages. Gain above all the possibility of using broadband Lambda oxygen sensor and the using additional of expansion modules rozszerzeniowych I / O we can install throughout the system:

– to 16 are heating circuits,

– 2 circuits of hot water,

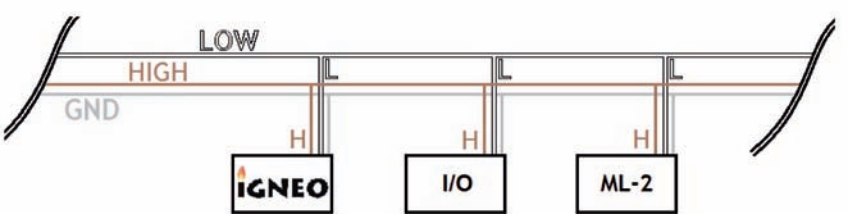
– heat storage tank (buffer),

– solar system (solars).

Socket CAN bus is on the left side of the device. Connecting cable must be connected according to the following designation.

Cable connection:
L – line LOW (white) H – line HIGH (brown) GND – ground (grey)

For connections on the CAN bus should be only used cable LiYCY 2x0,25. Only this type of cable gives the proper work of devices. Connections perform in a serial manner, this represents a figure below.



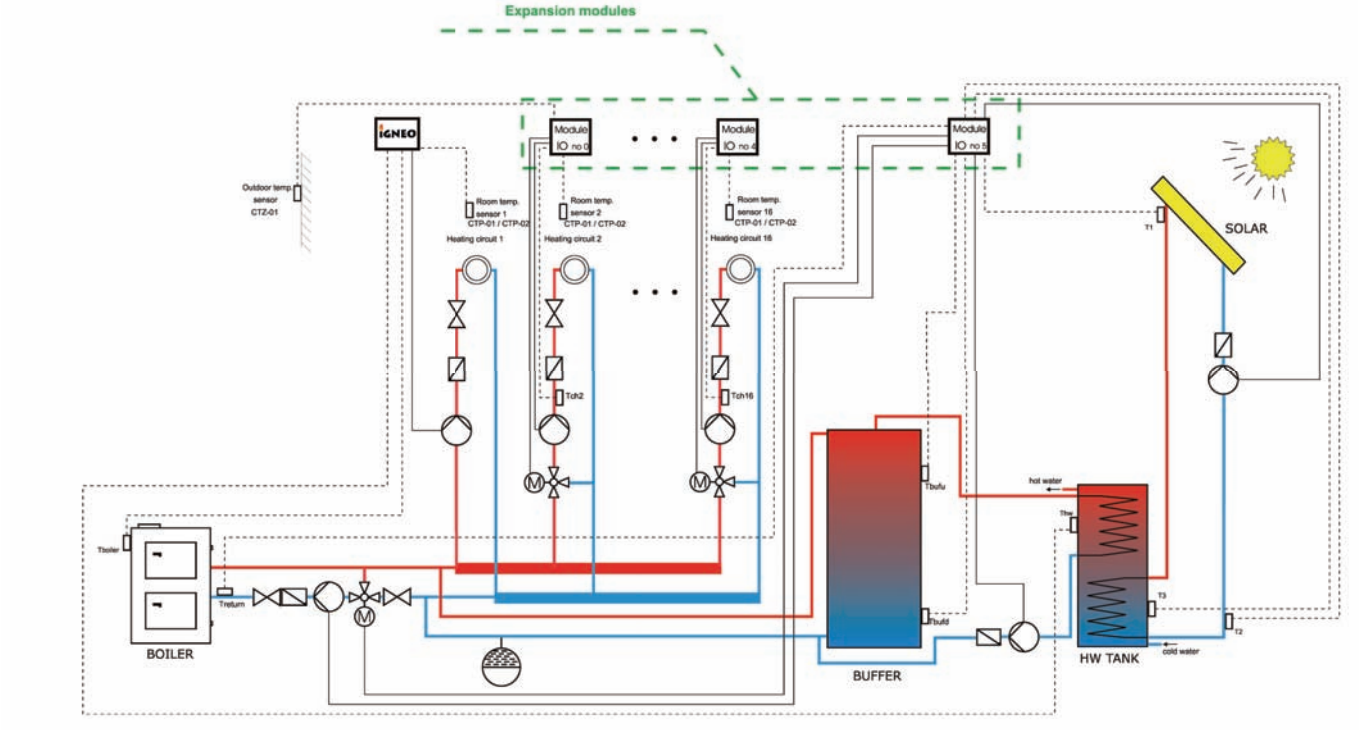
Plugging in expansion modules you need to remember to correctly set the terminator, which should be attached only at the last module throughout the system, even if the module is the only one.

After performing all the connections you must configure the module settings. Make this by selecting the modules that are connected to the network. More about the configuration each of expansion modules can be found in chapter 6.5.4.1 and instruction of the enlargement module I/O.

After finishing configuration of expansion modules to do remains only a change the system settings. Menu is used to configuration the heating system and the possibility of settings is dependent of number of arranged expansion modules. The table describing the functions refer to chapter 6.5.4.2.

On the next page is a sample diagram of the system. Please Warning that this is only overhead view, not containing all the elements of the system.

IMPORTANT!
Scheme does not include all elements of the system.



16.1 Sonda Lambda

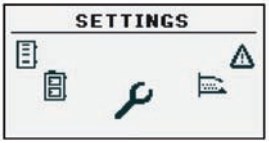
Lambda sensor we can connect to the system in two ways:

– directly to the controller, if the entire system with CAN bus module will only use Lambda oxygen sensor,

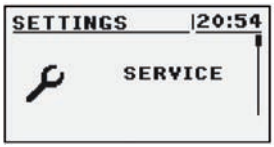
– through enlargement module I/O with the number 5, if in the system there are other modules enlargement.

After connecting the module configure the controller yet. For this purpose, proceed as explained below.

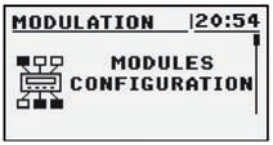
From the main menu select SETTINGS



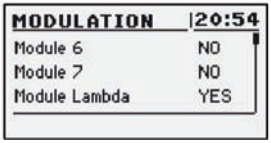
Then in the mode SERVICE enter the access code



After inputting the correct code, run the MODULES CONFIGURATION

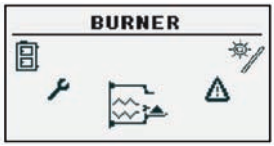


Find Lambda Module and turn it on by changing the option to YES

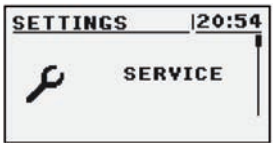


At this point, turned on the module Lambda. The second step is a change the configuration settings for the burner.

From the main menu by selecting BURNER we get to the settings.

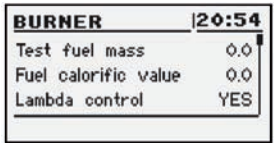


Here you can again enter the mode SERVICE and if required, enter the access code.



In the list, you can locate the position Lambda control, which switches on YES.

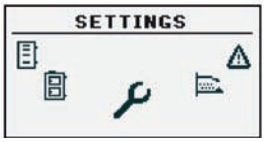
It is also possible working with switched off Lambda control mode. Then Lambda oxygen sensor module will be responsible only for displaying the measurements.



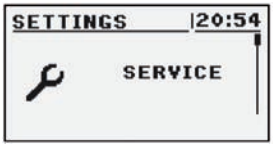
16.2 Solars

Solar collectors are supported only by enlargement module I/O number 5th. After performing all the connections you must configure the controller to work with collectors proceed as described below. The first step is to enable module number 5.

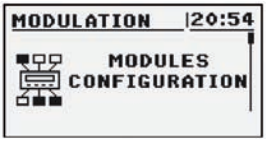
From the main menu select SETTINGS



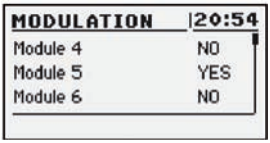
Then in the mode SERVICE enter the access code



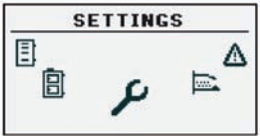
After inputting the correct code, run the MODULES CONFIGURATION



Find Module 5 and activate it by changing the settings to YES

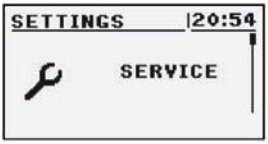


Now enable the solar handling. As the main menu select SETTINGS and then enter the access code in the SERVICE mode

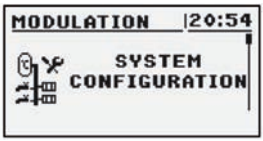


Now enable the solar handling.

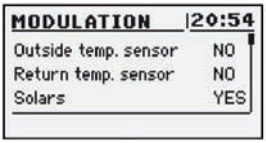
As the main menu select SETTINGS and then enter the access code in the SERVICE mode



After entering the code run SYSTEM CONFIGURATION



Find the position Solars and activate them by changing the settings to YES

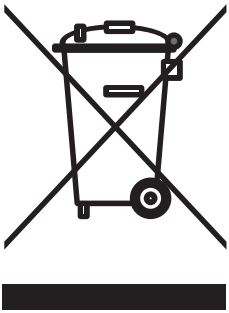


After finishing configuration the controller we can start to change the adjustment and settings for Solars. Description of the configuration these elements can be found in chapter12.8.

17. Specification

Technical data	
Module supply voltage	~230V/50Hz ±10%
Power input (module)	<6VA
Temperature measurement accuracy	±4ºC
Sensors	NTC 10kΩ B25/85=3877K±0,75% VISHAY BC components
Ambient temperature	0-60 °C
Moisture	5-95% non-condensing
Software class	A
Module output load capacity	
CH pump	100W
HW pump	100W
Igniter	400W
Blower	150W
Burner feeder	150W
Feeder tank	150W

18. Ending



Present appliance is marked according to European Directive 2002/96/EC on waste electrical and electronic equipment.

Symbol placed on the components or attached documents means that appliance is not classified as a household waste.

Scrapping should take place in special collection point in order to reuse electrical and electronic components.

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